NON-PUBLIC?: N
ACCESSION #: 9411140139
LICENSEE EVENT REPORT (LER)

FACILITY NAME: COMANCHE PEAK-UNIT 2 PAGE: 1 OF 6

DOCKET NUMBER: 05000446

TITLE: MANUAL REACTOR TRIP INITIATED DUE TO A DIGITAL ROD POSITION FAILURE INDICATION
EVENT DATE: 10/07/94 LER #: 94-014-00 REPORT DATE: 11/07/94

OTHER FACILITIES INVOLVED: COMANCHE PEAK-UNIT 1 DOCKET NO: 05000445

OPERATING MODE: 2 POWER LEVEL: 001

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:

NAME: W. G. GULDEMOND, SYSTEM
ENGINEERING MANAGER TELEPHONE: (817) 897-8739

COMPONENT FAILURE DESCRIPTION:

CAUSE: SYSTEM: COMPONENT: MANUFACTURER:

REPORTABLE NPRDS: N

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On October 7, 1994, Comanche Peak Steam Electric Station Unit 2 was in Mode 2 startup and less than 1 percent reactor power. Plant shutdown was in progress for the first refueling outage. Control bank D was at 118 steps. At 5:20 p.m., a manual reactor trip was initiated due to digital rod position indication failure for control bank D control rod H-8. The cause of the event, i.e., Digital Rod Position Indication (DRPI) (EIIS:(ZI)(AA)) for control rod H-8 not responding correctly, was attributed to a loose connector. The loose connection will be corrected during the refueling outage and the DRPI tested prior to reactor startup.

END OF ABSTRACT



I. DESCRIPTION OF THE REPORTABLE EVENT

A. REPORTABLE EVENT CLASSIFICATION

Any event or condition that resulted in a manual or automatic actuation of an Engineered Safety Feature (ESF) including the Reactor Protection System (RPS).

B. PLANT OPERATING CONDITIONS PRIOR TO THE EVENT

On October 7, 1994, prior to the event, Comanche Peak Steam Electric Station Unit 2 was in Mode 2, Startup, with reactor power less than 1 percent. Reactor coolant temperature was approximately 555 degrees F and pressure was approximately 2236 psig. A reactor shutdown was in progress in preparation for the start of a refueling outage.

C. STATUS OF STRUCTURES, SYSTEMS, OR COMPONENTS THAT WERE INOPERABLE AT THE START OF THE EVENT AND THAT CONTRIBUTED TO
THE EVENT

The Digital Rod Position Indication (DRPI) was declared inoperable for control Bank D rod H-8.

D. NARRATIVE SUMMARY OF THE EVENT, INCLUDING DATES AND APPROXIMATE
TIMES

On October 7, 1994 at approximately 9:35 a.m., while inserting Control Bank D rods for a planned shutdown, a Digital Rod Position Indication (DRPI) alarm actuated. Rod H-8 in Control Bank D indicated 138 steps while the remaining Control Bank D rods indicated 126 steps, creating an indication of a rod deviation. Operators (utility, licensed) halted rod movement and entered the applicable T.S. Action Statement and initiated troubleshooting for this event.

System Engineers (utility, non-licensed) advised the Operators to move the control Bank D rods out to verify that the rod H-8 was not stuck. When the control Bank D rods reached 132 steps, DRPI for rod H-8 changed from 138 to 132 steps. After

determining that rod H-8 had not moved in on a out signal Control Bank D was again moved out. The DRPI for rod H-8 continued to track out with the rest of Control Bank D to 138 steps. Upon insertion, DRPI indication for rod H-8 tracked to 132 steps and then changed to 138 steps as the remaining control Bank D rods DRPI indications moved to 126 steps.



During the above rod movement and to confirm correct rod position, Reactor Engineering (utility, non-licensed) performed two incore flux maps. Additionally, I&C maintenance (utility, non-licensed) and System Engineers obtained two step demand traces for rod H-8 while moving control Bank D rods inward. The traces confirmed correct directional movement of rod H-8.

The flux mapping results and step demand traces indicated correct system conditions and assured the control room staff that rod H-8 was moving properly. As Control Bank D rods reached 120 steps, DRPI for rod H-8 changed from 138 steps to 126 steps confirming a DRPI problem between the 126 and 138 steps.

On October 7, 1994, at 4:12 p.m. Operations declared DRPI inoperable for rod H-8 and continued to insert Control Bank D for the plant shutdown.

On October 7, 1994, at approximately 5:20 p.m., after the main turbine was shutdown, Reactor Operators (utility, licensed) withdrew Bank D control rods to regulate Reactor Coolant System temperature. At the 120 step position the DRPI Rod Deviation, DRPI Urgent Failure, Any Rod at Bottom, Rod H-8 General Warning, and Rod H-8 Bottom indications alarmed. These were expected alarm conditions for an inoperable digital rod position indication. At this point, the reactor power was less than 1 percent in Mode 2. The Technical Specification Action Statement for an inoperable DRPI while in Mode 3 requires the reactor trip breakers to be immediately opened. Since the DRPI was declared inoperable, reactor shutdown was continuing and Mode 3 entry was inevitable, operators manually tripped the reactor. All control rods fully inserted into the reactor core and the plant was safely placed in Mode 3, Hot Standby.

E. THE METHOD OF DISCOVERY OF EACH COMPONENT OR SYSTEM FAILURE,
OR PROCEDURAL OR PERSONNEL ERROR

An alarm was received on the control board and DRPI indicated rod H-8 was misaligned by 12 steps with the other rods in control Bank D.



II. COMPONENT OR SYSTEM FAILURES

A. FAILED COMPONENT INFORMATION

The event reported via this LER is for a manual reactor trip. There were no component failures in the strict sense associated with this event. TU Electric determined that rod H-8 was actually aligned with Control Bank D and attributes the loss of DRPI indication for the rod H-8 movement to a loose connector at the data cabinet. This connection was made during the initial core load activities.

B. FAILURE MODE, MECHANISM, AND EFFECT OF EAC FAILED COMPONENT

Not applicable - There were no component failures associated with this event.

C. CAUSE OF EACH COMPONENT OR SYSTEM FAILURE

Not applicable - There were no component failures associated with this event.

D. SYSTEMS OR SECONDARY FUNCTIONS THAT WERE AFFECTED BY FAILURE OF
COMPONENTS WITH MULTIPLE FUNCTIONS

Not applicable - There were no failed components with multiple functions that affected this event.

III. ANALYSIS OF THE EVENT

A. SAFETY SYSTEM RESPONSES THAT OCCURRED

A manual reactor trip was initiated in response to an inaccurate DRPI indication. Safety system responses were normal for the reactor trip signal.

B. DURATION OF SAFETY SYSTEM TRAIN INOPERABILITY

On October 7, 1994 at approximately 4:12 p.m. the DRPI was declared inoperable prior to a manual trip at 5:20 p.m.. The DRPI system will be tested for operability at the conclusion of the Unit 2 Refueling Outage.



C. SAFETY CONSEQUENCES AND IMPLICATIONS OF THE EVENT

TU Electric's review of this event concluded that there were no safety consequences for the following reasons: 1) incore flux mapping and step demand traces confirmed correct inward movement, and 2) the fact that at no time did a rod deviation from CPSES Technical Specification 3.1.3.2 occur. This event did not adversely affect the safe operation of CPSES Unit 2 or the health and safety of the public.

IV. CAUSE OF THE EVENT

During troubleshooting, a DRPI Detector/Encoder circuit card was believed to be defective and was replaced. Subsequent testing of the card on the circuit card tester demonstrated that the card operated correctly. No failures with the DRPI data cabinet or display circuits were found.

During DRPI cable disconnection for the refueling outage a loose connector for rod H-8 data B signal was found at the data cabinet. Coil continuity checks of the DRPI detector coil stacks were satisfactory. Since no failure with the data processing circuitry or detector coil stacks were identified, the loose DRPI connector at the data cabinet most likely caused the loss of DRPI indication for control rod H-8; which lead to the subsequent manual reactor trip.

V. CORRECTIVE ACTION

The loose connector will be corrected during the refueling outage and the DRPI tested before reactor startup. TU Electric considers this event as an isolated occurrence. The importance of properly made connections has been reemphasized to cognizant personnel to assure trouble free operation for both units.

VI. PREVIOUS SIMILAR EVENTS

There have been no similar events reported via the Licensee Event Report (LER) process.

VII. ADDITIONAL INFORMATION

The times reported in this report are approximate and central daylight time.



Log # TXX-94280
File # 10200
Ref. # 10CFR50-73(a)(2)(iv)

TUELECTRIC

C. Lance Terry November 7, 1994
Group Vice President

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES) - Unit 2
DOCKET NO. 50-446
MANUAL OR AUTOMATIC ACTUATION OF ENGINEERED SAFETY FEATURE
LICENSEE EVENT REPORT 446/94-014-00

Gentlemen:

Enclosed is Licensee Event Report (LER) 94-014-00 for Comanche Peak Steam Electric Station Unit 2, "Manual Reactor Trip Initiated Due to a Digital Rod Position Failure Indication

Sincerely,

C. L. Terry

By:
Roger D. Walker
Regulatory Affairs Manager

DWS: cc
Enclosure

cc: Mr. L. J. Callan, Region IV

Mr. D. D. Chamberlain, Region IV
Resident Inspectors, CPSES

400 N. Olive L.B. 81 Dallas, Texas 75201

*** END OF DOCUMENT ***